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<110> PENNINGER, JOSEPH M.  
CRACKOWER, MICHAEL A.

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KIDNEY DISEASE AND HYPERTENSION

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<150> PCT/CA03/00882

<151> 2003-06-19

<150> US 60/389,709

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Gly	Asn	Ser	Glu	Pro	Trp	Thr	Lys	Ala	Leu	Glu	Asn	Val	Val	Gly	Ala
				565					570					575	
Arg	Asn	Met	Asp	Val	Lys	Pro	Leu	Leu	Asn	Tyr	Phe	Gln	Pro	Leu	Phe
			580					585					590		
Asp	Trp	Leu	Lys	Glu	Gln	Asn	Arg	Asn	Ser	Phe	Val	Gly	Trp	Asn	Thr
		595					600					605			
Glu	Trp	Ser	Pro	Tyr	Ala	Asp	Gln	Ser	Ile	Lys	Val	Arg	Ile	Ser	Leu
		610				615					620				
Lys	Ser	Ala	Leu	Gly	Ala	Asn	Ala	Tyr	Glu	Trp	Thr	Asn	Asn	Glu	Met
625					630					635					640
Phe	Leu	Phe	Arg	Ser	Ser	Val	Ala	Tyr	Ala	Met	Arg	Lys	Tyr	Phe	Ser
				645					650					655	
Ile	Ile	Lys	Asn	Gln	Thr	Val	Pro	Phe	Leu	Glu	Glu	Asp	Val	Arg	Val
			660					665					670		
Ser	Asp	Leu	Lys	Pro	Arg	Val	Ser	Phe	Tyr	Phe	Phe	Val	Thr	Ser	Pro
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Gln	Asn	Val</													

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<211> 73
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<213> Homo sapiens

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tggagctcag ttt 73

<210> 6
<211> 64
<212> DNA
<213> Homo sapiens

<400> 6
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acat 64

<210> 7
<211> 77
<212> DNA
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ctcagaccac aagatcc 77

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<212> DNA
<213> Homo sapiens

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<222> (51)..(51)
<223> n= c or a

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aatattctgg tgttatcttt gtatttaatt tctcagtggg t 101

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<212> DNA
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aaggaatata cacc

74

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acacttctac atcagcagct ttatgacac 89

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<223> n= g or a

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acacttctac atcagcagct ttatgacac 89

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accatttata catttccaca cttacaactc aattttccaa tggagctggt gatg 114

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<212> DNA  
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<222> (37)..(37)  
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gaatatctg 69

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<222> (29)..(29)  
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tacatttc 68

<210> 18  
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<220>  
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 <222> (41)..(41)  
 <223> n= c or t

<400> 18  
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 taggacctga ttcatt 76

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 <213> Artificial Sequence

<220>  
 <223> Synthetic primer  
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 <223> Synthetic primer  
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<210> 21  
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 <213> Artificial Sequence

<220>  
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 Leu Ile Glu Asp  
 20

<210> 22  
 <211> 732  
 <212> PRT  
 <213> Mus musculus

<400> 22  
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 Asp His Val Thr Ala Asn Gln Gly Ile Thr Asn Gln Ala Thr Thr Arg  
 35 40 45  
 Ser Gln Thr Thr Thr His Gln Ala Thr Ile Asp Gln Thr Thr Gln Ile  
 50 55 60  
 Pro Asn Leu Glu Thr Asp Glu Ala Lys Ala Asp Arg Phe Val Glu Glu  
 65 70 75 80  
 Tyr Asp Arg Thr Ala Gln Val Leu Leu Asn Glu Tyr Ala Glu Ala Asn  
 85 90 95

Trp	Gln	Tyr	Asn	Thr	Asn	Ile	Thr	Ile	Glu	Gly	Ser	Lys	Ile	Leu	Leu	
			100					105					110			
Glu	Lys	Ser	Thr	Glu	Val	Ser	Asn	His	Thr	Leu	Lys	Tyr	Gly	Thr	Arg	
		115					120					125				
Ala	Lys	Thr	Phe	Asp	Val	Ser	Asn	Phe	Gln	Asn	Ser	Ser	Ile	Lys	Arg	
	130					135					140					
Ile	Ile	Lys	Lys	Leu	Gln	Asn	Leu	Asp	Arg	Ala	Val	Leu	Pro	Pro	Lys	
145				150						155					160	
Glu	Leu	Glu	Glu	Tyr	Asn	Gln	Ile	Leu	Leu	Asp	Met	Glu	Thr	Thr	Tyr	
			165						170					175		
Ser	Leu	Ser	Asn	Ile	Cys	Tyr	Thr	Asn	Gly	Thr	Cys	Met	Pro	Leu	Glu	
			180					185					190			
Pro	Asp	Leu	Thr	Asn	Met	Met	Ala	Thr	Ser	Arg	Lys	Tyr	Glu	Glu	Leu	
		195				200						205				
Leu	Trp	Ala	Trp	Lys	Ser	Trp	Arg	Asp	Lys	Val	Gly	Arg	Ala	Ile	Leu	
	210					215					220					
Pro	Phe	Phe	Pro	Lys	Tyr	Val	Glu	Phe	Ser	Asn	Lys	Ile	Ala	Lys	Leu	
225				230						235					240	
Asn	Gly	Tyr	Thr	Asp	Ala	Gly	Asp	Ser	Trp	Arg	Ser	Leu	Tyr	Glu	Ser	
			245						250					255		
Asp	Asn	Leu	Glu	Gln	Asp	Leu	Glu	Lys	Leu	Tyr	Gln	Glu	Leu	Gln	Pro	
		260					265						270			
Leu	Tyr	Leu	Asn	Leu	His	Ala	Tyr	Val	Arg	Arg	Ser	Leu	His	Arg	His	
	275						280					285				
Tyr	Gly	Ser	Glu	Tyr	Ile	Asn	Leu	Asp	Gly	Pro	Ile	Pro	Ala	His	Leu	
	290					295					300					
Leu	Gly	Asn	Met	Trp	Ala	Gln	Thr	Trp	Ser	Asn	Ile	Tyr	Asp	Leu	Val	
305				310						315					320	
Ala	Pro	Phe	Pro	Ser	Ala	Pro	Asn	Ile	Asp	Ala	Thr	Glu	Ala	Met	Ile	
			325						330					335		
Lys	Gln	Gly	Trp	Thr	Pro	Arg	Arg	Ile	Phe	Lys	Glu	Ala	Asp	Asn	Phe	
		340						345					350			
Phe	Thr	Ser	Leu	Gly	Leu	Leu	Pro	Val	Pro	Pro	Glu	Phe	Trp	Asn	Lys	
	355						360					365				
Ser	Met	Leu	Glu	Lys	Pro	Thr	Asp	Gly	Arg	Glu	Val	Val	Cys	His	Pro	
	370					375					380					
Ser	Ala	Trp	Asp	Phe	Tyr	Asn	Gly	Lys	Asp	Phe	Arg	Ile	Lys	Gln	Cys	
385				390						395					400	
Thr	Ser	Val	Asn	Met	Glu	Asp	Leu	Val	Ile	Ala	His	His	Glu	Met	Gly	
			405						410					415		
His	Ile	Gln	Tyr	Phe	Met	Gln	Tyr	Lys	Asp	Leu	Pro	Val	Thr	Phe	Arg	
		420						425					430			
Glu	Gly	Ala	Asn	Pro	Gly	Phe	His	Glu	Ala	Ile	Gly	Asp	Ile	Met	Ala	
	435						440					445				
Leu	Ser	Val	Ser	Thr	Pro	Lys	His	Leu	Tyr	Ser	Leu	Asn	Leu	Leu	Ser	
	450					455					460					
Thr	Glu	Gly	Ser	Gly	Tyr	Glu	Tyr	Asp	Ile	Asn	Phe	Leu	Met	Lys	Met	
465				470						475					480	
Ala	Leu	Asp	Lys	Ile	Ala	Phe	Ile	Pro	Phe	Ser	Tyr	Leu	Ile	Asp	Gln	
			485					490						495		
Trp	Arg	Trp	Arg	Val	Phe	Asp	Gly	Ser	Ile	Thr	Lys	Glu	Asn	Tyr	Asn	
		500						505					510			
Gln	Glu	Trp	Trp	Ser	Leu	Arg	Leu	Lys	Tyr	Gln	Gly	Leu	Cys	Pro	Pro	
	515						520					525				
Val	Pro	Arg	Ser	Gln	Gly	Asp	Phe	Asp	Pro	Gly	Ser	Lys	Phe	His	Val	
	530					535					540					
Pro	Ala	Asn	Val	Pro	Tyr	Val	Arg	Tyr	Phe	Val	Ser	Phe	Ile	Ile	Gln	
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Phe	Gln	Phe	His	Glu	Ala	Leu	Cys	Arg	Ala	Ala	Gly	His	Thr	Gly	Pro	
			565						570					575		

Leu	His	Lys	Cys	Asp	Ile	Tyr	Gln	Ser	Lys	Glu	Ala	Gly	Lys	Leu	Leu		
			580					585					590				
Ala	Asp	Ala	Met	Lys	Leu	Gly	Tyr	Ser	Lys	Pro	Trp	Pro	Glu	Ala	Met		
		595					600					605					
Lys	Leu	Ile	Thr	Gly	Gln	Pro	Asn	Met	Ser	Ala	Ser	Ala	Met	Met	Asn		
	610				615						620						
Tyr	Phe	Lys	Pro	Leu	Thr	Glu	Trp	Leu	Val	Thr	Glu	Asn	Arg	Arg	His		
625					630					635					640		
Gly	Glu	Thr	Leu	Gly	Trp	Pro	Glu	Tyr	Asn	Trp	Ala	Pro	Asn	Thr	Ala		
				645					650					655			
Arg	Ala	Glu	Gly	Ser	Thr	Ala	Glu	Ser	Asn	Arg	Val	Asn	Phe	Leu	Gly		
			660					665					670				
Leu	Tyr	Leu	Glu	Pro	Gln	Gln	Ala	Arg	Val	Gly	Gln	Trp	Val	Leu	Leu		
		675					680					685					
Phe	Leu	Gly	Val	Ala	Leu	Leu	Val	Ala	Thr	Val	Gly	Leu	Ala	His	Arg		
	690					695				700							
Leu	Tyr	Asn	Ile	Arg	Asn	His	His	Ser	Leu	Arg	Arg	Pro	His	Arg	Gly		
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Pro	Gln	Phe	Gly	Ser	Glu	Val	Glu	Leu	Arg	His	Ser						
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 <212> PRT  
 <213> Homo sapiens

<400> 23																	
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			20					25					30				
Gln	Gln	Val	Thr	Val	Thr	His	Gly	Thr	Ser	Ser	Gln	Ala	Thr	Thr	Ser		
		35					40					45					
Ser	Gln	Thr	Thr	Thr	His	Gln	Ala	Thr	Ala	His	Gln	Thr	Ser	Ala	Gln		
	50				55					60							
Ser	Pro	Asn	Leu	Val	Thr	Asp	Glu	Ala	Glu	Ala	Ser	Lys	Phe	Val	Glu		
65					70				75						80		
Glu	Tyr	Asp	Arg	Thr	Ser	Gln	Val	Val	Trp	Asn	Glu	Tyr	Ala	Glu	Ala		
			85					90					95				
Asn	Trp	Asn	Tyr	Asn	Thr	Asn	Ile	Thr	Thr	Glu	Thr	Ser	Lys	Ile	Leu		
		100						105					110				
Leu	Gln	Lys	Asn	Met	Gln	Ile	Ala	Asn	His	Thr	Leu	Lys	Tyr	Gly	Thr		
		115					120					125					
Gln	Ala	Arg	Lys	Phe	Asp	Val	Asn	Gln	Leu	Gln	Asn	Thr	Thr	Ile	Lys		
	130					135				140							
Arg	Ile	Ile	Lys	Lys	Val	Gln	Asp	Leu	Glu	Arg	Ala	Ala	Leu	Pro	Ala		
145					150					155					160		
Gln	Glu	Leu	Glu	Glu	Tyr	Asn	Lys	Ile	Leu	Leu	Asp	Met	Glu	Thr	Thr		
				165					170					175			
Tyr	Ser	Val	Ala	Thr	Val	Cys	His	Pro	Asn	Gly	Ser	Cys	Leu	Gln	Leu		
			180					185					190				
Glu	Pro	Asp	Leu	Thr	Asn	Val	Met	Ala	Thr	Ser	Arg	Lys	Tyr	Glu	Asp		
		195					200					205					
Leu	Leu	Trp	Ala	Trp	Glu	Gly	Trp	Arg	Asp	Lys	Ala	Gly	Arg	Ala	Ile		
	210					215					220						
Leu	Gln	Phe	Tyr	Pro	Lys	Tyr	Val	Glu	Leu	Ile	Asn	Gln	Ala	Ala	Arg		
225					230					235					240		
Leu	Asn	Gly	Tyr	Val	Asp	Ala	Gly	Asp	Ser	Trp	Arg	Ser	Met	Tyr	Glu		
				245					250					255			
Thr	Pro	Ser	Leu	Glu	Gln	Asp	Leu	Glu	Arg	Leu	Phe	Gln	Glu	Leu	Gln		

			260					265					270			
Pro	Leu	Tyr	Leu	Asn	Leu	His	Ala	Tyr	Val	Arg	Arg	Ala	Leu	His	Arg	
		275					280					285				
His	Tyr	Gly	Ala	Gln	His	Ile	Asn	Leu	Glu	Gly	Pro	Ile	Pro	Ala	His	
	290					295					300					
Leu	Leu	Gly	Asn	Met	Trp	Ala	Gln	Thr	Trp	Ser	Asn	Ile	Tyr	Asp	Leu	
305					310						315				320	
Val	Val	Pro	Phe	Pro	Ser	Ala	Pro	Ser	Met	Asp	Thr	Thr	Glu	Ala	Met	
				325					330							
Leu	Lys	Gln	Gly	Trp	Thr	Pro	Arg	Arg	Met	Phe	Lys	Glu	Ala	Asp	Asp	
			340					345					350			
Phe	Phe	Thr	Ser	Leu	Gly	Leu	Leu	Pro	Val	Pro	Pro	Glu	Phe	Trp	Asn	
		355					360					365				
Lys	Ser	Met	Leu	Glu	Lys	Pro	Thr	Asp	Gly	Arg	Glu	Val	Val	Cys	His	
	370					375					380					
Ala	Ser	Ala	Trp	Asp	Phe	Tyr	Asn	Gly	Lys	Asp	Phe	Arg	Ile	Lys	Gln	
385					390					395					400	
Cys	Thr	Thr	Val	Asn	Leu	Glu	Asp	Leu	Val	Val	Ala	His	His	Glu	Met	
				405					410							
Gly	His	Ile	Gln	Tyr	Phe	Met	Gln	Tyr	Lys	Asp	Leu	Pro	Val	Ala	Leu	
			420					425					430			
Arg	Glu	Gly	Ala	Asn	Pro	Gly	Phe	His	Glu	Ala	Ile	Gly	Asp	Val	Leu	
		435					440					445				
Ala	Leu	Ser	Val	Ser	Thr	Pro	Lys	His	Leu	His	Ser	Leu	Asn	Leu	Leu	
	450					455					460					
Ser	Ser	Glu	Gly	Gly	Ser	Asp	Glu	His	Asp	Ile	Asn	Phe	Leu	Met	Lys	
465					470					475					480	
Met	Ala	Leu	Asp	Lys	Ile	Ala	Phe	Ile	Pro	Phe	Ser	Tyr	Leu	Val	Asp	
				485					490						495	
Gln	Trp	Arg	Trp	Arg	Val	Phe	Asp	Gly	Ser	Ile	Thr	Lys	Glu	Asn	Tyr	
			500					505					510			
Asn	Gln	Glu	Trp	Trp	Ser	Leu	Arg	Leu	Lys	Tyr	Gln	Gly	Leu	Cys	Pro	
		515					520					525				
Pro	Val	Pro	Arg	Thr	Gln	Gly	Asp	Phe	Asp	Pro	Gly	Ala	Lys	Phe	His	
	530					535					540					
Ile	Pro	Ser	Ser	Val	Pro	Tyr	Ile	Arg	Tyr	Phe	Val	Ser	Phe	Ile	Ile	
545					550					555					560	
Gln	Phe	Gln	Phe	His	Glu	Ala	Leu	Cys	Gln	Ala	Ala	Gly	His	Thr	Gly	
				565					570						575	
Pro	Leu	His	Lys	Cys	Asp	Ile	Tyr	Gln	Ser	Lys	Glu	Ala	Gly	Gln	Arg	
			580					585					590			
Leu	Ala	Thr	Ala	Met	Lys	Leu	Gly	Phe	Ser	Arg	Pro	Trp	Pro	Glu	Ala	
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Met	Gln	Leu	Ile	Thr	Gly	Gln	Pro	Asn	Met	Ser	Ala	Ser	Ala	Met	Leu	
	610					615										

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 <212> PRT  
 <213> Rattus rattus

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 Asn Gln Glu Ala Glu Asp Leu Ser Tyr Gln Ser Ser Leu Ala Ser Trp  
 35 40 45  
 Asn Tyr Asn Thr Asn Ile Thr Glu Glu Asn Ala Gln Lys Met Asn Glu  
 50 55 60  
 Ala Ala Ala Lys Trp Ser Ala Phe Tyr Glu Glu Gln Ser Lys Ile Ala  
 65 70 75 80  
 Gln Asn Phe Ser Leu Gln Glu Ile Gln Asn Ala Thr Ile Lys Arg Gln  
 85 90 95  
 Leu Lys Ala Leu Gln Gln Ser Gly Ser Ser Ala Leu Ser Pro Asp Lys  
 100 105 110  
 Asn Lys Gln Leu Asn Thr Ile Leu Asn Thr Met Ser Thr Ile Tyr Ser  
 115 120 125  
 Thr Gly Lys Val Cys Asn Ser Met Asn Pro Gln Glu Cys Phe Leu Leu  
 130 135 140  
 Glu Pro Gly Leu Asp Glu Ile Met Ala Thr Ser Thr Asp Tyr Asn Arg  
 145 150 155 160  
 Arg Leu Trp Ala Trp Glu Gly Trp Arg Ala Glu Val Gly Lys Gln Leu  
 165 170 175  
 Arg Pro Leu Tyr Glu Glu Tyr Val Val Leu Lys Asn Glu Met Ala Arg  
 180 185 190  
 Ala Asn Asn Tyr Glu Asp Tyr Gly Asp Tyr Trp Arg Gly Asp Tyr Glu  
 195 200 205  
 Ala Glu Gly Val Glu Gly Tyr Asn Tyr Asn Arg Asn Gln Leu Ile Glu  
 210 215 220  
 Asp Val Glu Asn Thr Phe Lys Glu Ile Lys Pro Leu Tyr Glu Gln Leu  
 225 230 235 240  
 His Ala Tyr Val Arg Thr Lys Leu Met Glu Val Tyr Pro Ser Tyr Ile  
 245 250 255  
 Ser Pro Thr Gly Cys Leu Pro Ala His Leu Leu Gly Asp Met Trp Gly  
 260 265 270  
 Arg Phe Trp Thr Asn Leu Tyr Pro Leu Thr Thr Pro Phe Leu Gln Lys  
 275 280 285  
 Pro Asn Ile Asp Val Thr Asp Ala Met Val Asn Gln Ser Trp Asp Ala  
 290 295 300  
 Glu Arg Ile Phe Lys Glu Ala Glu Lys Phe Phe Val Ser Val Gly Leu  
 305 310 315 320  
 Pro Gln Met Thr Pro Gly Phe Trp Thr Asn Ser Met Leu Thr Glu Pro  
 325 330 335  
 Gly Asp Asp Arg Lys Val Val Cys His Pro Thr Ala Trp Asp Leu Gly  
 340 345 350  
 His Gly Asp Phe Arg Ile Lys Met Cys Thr Lys Val Thr Met Asp Asn  
 355 360 365  
 Phe Leu Thr Ala His His Glu Met Gly His Ile Gln Tyr Asp Met Ala  
 370 375 380  
 Tyr Ala Lys Gln Pro Phe Leu Leu Arg Asn Gly Ala Asn Glu Gly Phe  
 385 390 395 400  
 His Glu Ala Val Gly Glu Ile Met Ser Leu Ser Ala Ala Thr Pro Lys  
 405 410 415  
 His Leu Lys Ser Ile Gly Leu Leu Pro Ser Asn Phe Gln Glu Asp Asn  
 420 425 430

Glu	Thr	Glu	Ile	Asn	Phe	Leu	Leu	Lys	Gln	Ala	Leu	Thr	Ile	Val	Gly
		435					440					445			
Thr	Leu	Pro	Phe	Thr	Tyr	Met	Leu	Glu	Lys	Trp	Arg	Trp	Met	Val	Phe
	450					455					460				
Gln	Asp	Lys	Ile	Pro	Arg	Glu	Gln	Trp	Thr	Lys	Lys	Trp	Trp	Glu	Met
465					470					475					480
Lys	Arg	Glu	Ile	Val	Gly	Val	Val	Glu	Pro	Leu	Pro	His	Asp	Glu	Thr
				485					490					495	
Tyr	Cys	Asp	Pro	Ala	Ser	Leu	Phe	His	Val	Ser	Asn	Asp	Tyr	Ser	Phe
			500					505					510		
Ile	Arg	Tyr	Tyr	Thr	Arg	Thr	Ile	Tyr	Gln	Phe	Gln	Phe	Gln	Glu	Ala
		515					520					525			
Leu	Cys	Gln	Ala	Ala	Lys	His	Asp	Gly	Pro	Leu	His	Lys	Cys	Asp	Ile
	530					535					540				
Ser	Asn	Ser	Thr	Glu	Ala	Gly	Gln	Lys	Leu	Leu	Asn	Met	Leu	Ser	Leu
545					550					555					560
Gly	Asn	Ser	Gly	Pro	Trp	Thr	Leu	Ala	Leu	Glu	Asn	Val	Val	Gly	Ser
				565					570					575	
Arg	Asn	Met	Asp	Val	Lys	Pro	Leu	Leu	Asn	Tyr	Phe	Gln	Pro	Leu	Phe
			580					585					590		
Val	Trp	Leu	Lys	Glu	Gln	Asn	Arg	Asn	Ser	Thr	Val	Gly	Trp	Ser	Thr
		595					600					605			
Asp	Trp	Ser	Pro	Tyr	Ala	Asp	Gln	Ser	Ile	Lys	Val	Arg	Ile	Ser	Leu
	610					615					620				
Lys	Ser	Ala	Leu	Gly	Lys	Asn	Ala	Tyr	Glu	Trp	Thr	Asp	Asn	Glu	Met
625					630					635					640
Tyr	Leu	Phe	Arg	Ser	Ser	Val	Ala	Tyr	Ala	Met	Arg	Glu	Tyr	Phe	Ser
				645					650					655	
Arg	Glu	Lys	Asn	Gln	Thr	Val	Pro	Phe	Gly	Glu	Ala	Asp	Val	Trp	Val
			660					665					670		
Ser	Asp	Leu	Lys	Pro	Arg	Val	Ser	Phe	Asn	Phe	Phe	Val	Thr	Ser	Pro
		675					680					685			
Lys	Asn	Val	Ser	Asp	Ile	Ile	Pro	Arg	Ser	Glu	Val	Glu	Glu	Ala	Ile
	690					695					700				
Arg	Met	Ser	Arg	Gly	Arg	Ile	Asn	Asp	Ile	Phe	Gly	Leu	Asn	Asp	Asn
705				710						715					720
Ser	Leu	Glu	Phe	Leu	Gly	Ile	Tyr	Pro	Thr	Leu	Lys	Pro	Pro	Tyr	Glu
				725					730					735	
Pro	Pro	Val	Thr	Ile	Trp	Leu	Ile	Ile	Phe	Gly	Val	Val	Met	Gly	Thr
			740					745					750		
Val	Val	Val	Gly	Ile	Val	Ile	Leu	Ile	Val	Thr	Gly	Ile	Lys	Gly	Arg
		755					760					765			
Lys	Lys	Lys	Asn	Glu	Thr	Lys	Arg	Glu	Glu	Asn	Pro	Tyr	Asp	Ser	Met
	770					775					780				
Asp	Ile	Gly	Lys												